

Ghana - Access to Electricity

Report generated on: August 7, 2019

Visit our data catalog at: <https://data.mcc.gov/evaluations/index.php>

Overview

Identification

COUNTRY

Ghana

EVALUATION TITLE

Access to Electricity

EVALUATION TYPE

Independent Evaluation

ID NUMBER

DDI-MCC-GHA-IE-ENERGY-A2E-2019-v01

Version

VERSION DESCRIPTION

- v01: Edited, anonymous dataset for public distribution.

Overview

ABSTRACT

The performance evaluation of Access will address the extent to which the project supports the overall power sector reform objectives of the Compact, as well as the implementation, outcomes, and sustainability of the project itself. The evaluation will rely on tracking key outcomes over time to assess pre-post changes, qualitative data analysis, enterprise case studies, and simulations. Evaluation questions include: 1. Was the Access project successful in expanding the number of connections? 2. Were projects activities implemented as designed? How did implementation (in terms of objectives, activities, and beneficiaries) deviate from the original logic driving the investment, and why? What were the implementation successes and challenges? How did changes in implementation affect project performance? 3. To what extent have the interventions improved the effectiveness of governance structures in markets and economic enclaves, and/or enhanced collaboration between market institutions and the utilities? 4. Were improvements in project outcomes sustained after the end of the Compact? What sustainability planning was done during implementation, and why? What are the critical institutional factors that affected their sustainability? Evaluation of Access will rely on the following data sources: 1) Implementation documents and records; 2) Administrative data from PDS< restructured ECG, and NEDCo; 3) FGDs with MSME owners and investors; 4) Household and enterprise survey; 5) GridWatch data. The performance evaluation will rely on tracking key outcomes over time to assess pre-post changes, qualitative data analysis, enterprise case studies, and simulations. Baseline data will take place in 2019, midline in 2021-2022, and endline in 2023-2024.

EVALUATION METHODOLOGY

pre-post, other (performance evaluation)

UNITS OF ANALYSIS

enterprise

KIND OF DATA

ssd, sdm, obs, pro

TOPICS

Topic	Vocabulary	URI
Energy	MCC Sector	

KEYWORDS

Ghana, Ghana compact, power, energy, electricity, power sector reform, access, energy access, enterprises, markets and economic enclaves

Coverage

GEOGRAPHIC COVERAGE

As of July 2019, the eight markets and economic enclaves identified as high-priority investment areas are Madina market, Kaneshie Market, Makola Market, Dansoman Market, Agboghloshie Market, Tamale Central Market, Accra Timber Economic Enclave, and Tamale Timber Economic Enclave. Two additional markets and economic enclaves could be included in the project if there are sufficient funds are added-NijNi Boi man in Accra and Lamashegu in Tamale.

UNIVERSE

Mirco, small, and medium sized enterprise owners and investors in the Access intervention areas

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Mathematica	

FUNDING

Name	Abbreviation	Role
Millennium Challenge Corporation	MCC	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Mathematica			Independent Evaluator

DATE OF METADATA PRODUCTION

2019-07-29

DDI DOCUMENT VERSION

Version 01

DDI DOCUMENT ID

DDI-MCC-GHA-IE-ENERGY-A2E-2019-v01

MCC Compact and Program

COMPACT OR THRESHOLD

Ghana II Compact

PROGRAM

The Ghana II Compact aims to improve the quality and reliability of power distribution systems; support regulatory reforms to promote private sector partnership and long-term financial sustainability; improve access to legal connections for micro, small, and medium-sized enterprises (MSMEs); and promote energy efficiency to manage demand growth. The compact comprised the four following projects designed to address critical challenges facing the electricity sector: (1) the ECG Financial and Operational Turnaround Project (EFOT), which was designed to improve ECG's management and efficiency by introducing private sector participation, reducing outages and commercial and technical losses, and modernizing the electricity distribution system; (2) the Regulatory Strengthening and Capacity Building Project, designed to promote sustainability, transparency, and accountability in the power sector through strengthening regulatory institutions and processes, reviewing and restructuring tariffs, and improving the environment for private sector investment; (3) the Access Project, which targets MSMEs in markets and economic enclaves in urban and peri-urban areas with activities to increase legal connections and improve security lighting; and (4) the Energy Efficiency and Demand Side Management (EEDSM) Project, which seeks to improve building and appliance efficiency and reduce energy wastage through energy audits; standards and labels for energy efficient devices; upgrades to street lighting; and education and public information activities. The original design of the compact also covered the NEDCo Financial and Operational Turnaround Project (NFOT) which was

designed to improve NEDCo's financial performance and customer service through private sector involvement in operational and commercial capacity building, infrastructure investments, and efforts to improve cost recovery. MiDA was not able to reach an agreement to move forward with this project, so it was de-scoped. Consequently, the funds are being reallocated, and we do not cover the project in this design report. The original design of the compact also included the Power Generation Sector Improvement (Generation) Project to diversify fuel sources for power generation through support for the gas sector and liquefied natural gas development and to strengthen the enabling environment for independent power producers (IPPs). The need for MCC assistance has been greatly reduced because the GoG is already undertaking reforms with support and technical assistance from USAID. As a result, MCC is not moving forward with this project and we do not cover it in this report.

MCC SECTOR

Energy (Energy)

PROGRAM LOGIC

MCC's problem diagnostic identified two main issues limiting the efficiency and effectiveness of the Ghana energy sector: (1) low reliability of electricity supply and (2) insufficient access to power. The program logic for the Ghana II Compact addresses these issues. The activities are expected to achieve targeted power sector outcomes of increased availability, reliability, and expansion of cost-effective generation for all utility customers and increase the number of businesses, institutions, and households connected to the grid. The core compact activities consist of four main projects; the ECG Financial and Operational Turnaround Project, the Regulatory Strengthening and Capacity Building Project, the Energy Efficiency and Demand Side Management Project, and the Access Project. Together, these projects aim to reduce or eliminate sector inefficiencies and reliance on government subsidies, improving service as a result. If successful, these projects would improve the availability and quality of electricity to consumers while also improving the financial health of the utility. Outcomes from these activities support the Compact's goal of reducing poverty through sustainable and equitable economic growth by improving Ghana's power sector. The Access Project targets MSMEs in markets and economic enclaves in urban and peri-urban areas with activities to increase legal connections, improve security lighting, and strengthen local institutions. As of July 2018, the eight markets and economic enclaves identified as high-priority investment areas are Madina market, Kaneshie Market, Makola Market, Dansoman Market, Agbogbloshie Market, Tamale Central Market, Accra Timber Economic Enclave, and Tamale Timber Economic Enclave. The combined infrastructure upgrades and security lighting activities will benefit all MSME vendors, particularly those with expanded access to grid electricity. The beneficiaries are the businesses in these areas, their employees, and their customers. The Access project consists of two interventions—one focused on infrastructure upgrades and another on strengthening institutional partnerships. The infrastructure intervention includes installation of high voltage distribution systems, pole mounted distribution transformers, secondary LV feeders, pole-mounted prepaid meter banks; customer service drops as cable-in-conduit, and security lighting. The infrastructure intervention should provide better access to safe, reliable and legal connections to electricity, and improved lighting for security. The institutional intervention includes a customer information campaign, customer normalization, facilitation assistance, and stakeholder coordination. The intervention should reduce the length of time required to get a connection, streamline the connection process, and improve compliance with wiring standards.

PROGRAM PARTICIPANTS

The combined infrastructure upgrades and security lighting activities will benefit all MSME vendors in the Access markets and enclaves, particularly those with expanded access to grid electricity. The beneficiaries are the businesses in these areas, their employees, and their customers.

Sampling

Study Population

Mirco, small, and medium sized enterprise owners and investors in the Access intervention areas

Sampling Procedure

We will conduct a longitudinal household and enterprise survey that covers the Greater Accra area as well as the next largest 7 cities in the ECG catchment area. We will only use the enterprises in this survey when evaluating the Access project. The survey will also cover 99 enterprises in the Access areas in the North of Ghana (in Tamale). We will work closely with GridWatch to ensure that our sample targets locations where they are collecting outage data, when possible, and so that we can avoid surveying the same households and enterprises covered in their baseline survey and so that we can take full advantage of the data they are collecting on outages and voltage fluctuations in the Greater Accra area. We will work with Ghana Statistical Service (GSS) and the World Bank to develop two sampling frames-one for households and one for businesses. We will use a multi-stage sampling plan. First we will sample enumeration areas. Second, we will sample electric poles within enumeration areas. Third, we will sample households and enterprises served by those poles. We will oversample larger enterprises to improve the precision of our data for addressing the Economic Rate of Return calculations. We will conduct Key Informant Interviews and Focus Group Discussion to help enrich our understanding of key issues. The evaluation will have three rounds of data collection, baseline in 2019, a qualitative midline in 2021 near the end of the compact, and an endline starting in 2023. We plan to sample 360 enterprises in the Access project areas in the Greater Accra area and estimate a minimum detectable effect (MDE) of about 0.24 standard deviations.

Deviations from Sample Design

Not applicable for evaluation design report.

Response Rate

Not applicable for evaluation design report.

Weighting

Not applicable for evaluation design report.

Questionnaires

Overview

Enterprise case studies will enable us to investigate the decision-making process for a small number of sample MSMEs. Through the enterprise survey and KIs, we will look at the profitability for MSMEs of investing in legal connections. This review will help assess the program logic for the Access project and help explain why the project was or was not successful in increasing the number of connections in certain markets or economic enclaves. It will also help understand the business case for a small firm's investment in a legal connection and whether there were negative impacts on customers who previously had illegal connections. We will conduct purposive sampling of the respondents to the enterprise module of the household and enterprise survey for the case studies. We will not include any households in these case studies unless they have microenterprises in Access areas.

Data Collection

Data Collection Dates

Start	End	Cycle
-------	-----	-------

Questionnaires

Enterprise case studies will enable us to investigate the decision-making process for a small number of sample MSMEs. Through the enterprise survey and KIs, we will look at the profitability for MSMEs of investing in legal connections. This review will help assess the program logic for the Access project and help explain why the project was or was not successful in increasing the number of connections in certain markets or economic enclaves. It will also help understand the business case for a small firm's investment in a legal connection and whether there were negative impacts on customers who previously had illegal connections. We will conduct purposive sampling of the respondents to the enterprise module of the household and enterprise survey for the case studies. We will not include any households in these case studies unless they have microenterprises in Access areas.

Data Collectors

Name	Abbreviation	Affiliation
Unknown because data not yet collected.		

Data Processing

Data Editing

Unknown because data not yet collected.

Other Processing

Unknown because data not yet collected.

Data Appraisal

Estimates of Sampling Error

Not applicable for evaluation design report.